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PATENT AND TRADEMARK OFFICE

APPEAL BRIEF TRANSMITTAL

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10191/1674

Conf. No.
8646

Application Number
09/742,980

Filing Date
December 20, 2000

Examiner
Alexander GILMAN

Art Unit
2833

Invention Title
**ELECTRICAL CONNECTOR HAVING
GUIDE AND CENTERING AID**

Inventor
Ernst HELD et al.

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Date: 6/10, 2003

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Jong H. Lee

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Further to the Notice of Appeal dated March 17, 2003 (filed at the PTO on March 25, 2003 in the above-referenced application, enclosed are three copies of an Appeal Brief. Accompanying the Appeal Brief is the Appendix to the Appeal Brief.

The Commissioner is hereby authorized to charge payment of the 37 C.F.R. § 1.17(c) appeal brief filing fee of **\$320.00**, a one-month extension fee of **\$110.00**, and any additional fees associated with this communication to the deposit account of **Kenyon & Kenyon**, deposit account number **11-0600**.

Dated: 6/10, 2003

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[10191/1674]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicants : Ernst HELD et al.
Serial No. : 09/742,980
Filing Date : December 20, 2000
For : ELECTRICAL CONNECTOR HAVING GUIDE AND
CENTERING AID
Examiner : Alexander GILMAN
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APPELLANTS' APPEAL BRIEF
UNDER 37 C.F.R. § 1.192

S I R :

Applicants filed a Notice of Appeal dated March 17, 2003 (filed at the PTO on March 25, 2003) appealing from the Final Office Action dated December 17, 2002, in which claims 1-6 of the above-identified application were finally rejected. This Brief is submitted by Applicants in support of their appeal.

I. REAL PARTY IN INTEREST

The above-identified Applicants and Robert Bosch GmbH of Stuttgart, Germany, are the real parties in interest.

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II. RELATED APPEALS AND INTERFERENCES

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal is known to exist to the undersigned attorney or is believed by the undersigned attorney to be known to exist to Applicants.

III. STATUS OF CLAIMS

Claims 1-6 are pending in this application. Applicants appealed from the final rejection of claims 1-6 made in the final Office Action mailed by the Patent Office on December 17, 2002. Of the claims presently on appeal, claim 1 is independent, and claims 2-6 ultimately depend from claim 1. Appealed claims 1-6 are set forth in the Appendix submitted herewith.

IV. STATUS OF AMENDMENTS

No amendment has been filed subsequent to the final Office Action mailed on December 17, 2002.

V. SUMMARY OF THE INVENTION

The present invention relates to an electrical connector arrangement having a plug connector and a mating connector, as well as guide and centering elements which cooperate with recesses. In order to improve the cooperation of guide elements and centering elements of a plug connector with recesses which are provided in the mating connector, at least one recess is dimensioned in such a way that, during the insertion of the plug connector into the mating connector, the guide element is guided in the recess and, in the inserted state, the recess is set apart from the guide element. (P. 2, l. 14-23). The plug connector is guided in a statically defined manner during the insertion process, and after ending the insertion process, while the plug connector is resting on the connector base, centering elements retain the plug connector in the correct position in the mating connector, and at the same time, the guide elements provide no further function. (P. 2, l. 25-31).

The guide elements may be composed of cam-like elements on the plug connector and guideway-like recesses on a mating connector. (P. 2, l. 33-35). To ensure the functioning of such guideways according to the present invention, the cam-like formations are located in the immediate vicinity of the opening of the plug connector, so that when mounting the plug connector on the mating connector, the cam-like formations are placed in position in the guide-like recesses in the mating connector and glide in these guide elements. (P. 2, l. 35 - p. 3, l. 4). The electrical contacts in the plug connector and mating connector, respectively, can be exactly connected with one another without the plug connector tilting during the insertion process and thus possibly destroying one or more electrical contacts. (P. 3, l. 4-8).

When the electrical contact between the plug connector and the mating connector is produced, then the plug connector is in an end position. (P. 3, l. 10-12). In this end position, the recess of the guide element is dimensioned in such a way that the cam-like formation of the guide element is no longer guided by the recess. (P. 3, l. 12-15). In this position, centering elements engage and retain the connector in the correct position in the mating connector. (P. 3, l. 15-16). To this end, according to the present invention, centering elements are arranged particularly on the opposite side pointing away from the opening of the plug connector, i.e., in the inserted state, the centering elements are in the area of the opening of the mating connector. (P. 3, l. 17-21). The centering elements may have a lug-like formation and position the plug connector by punctiform support locations in the mating connector. (P. 3, l. 21-23).

Connector 1 shown in Figure 1 is made of a plug connector 2 and a mating connector 3. Plug connector 2 includes a housing 4 and a receptacle 5, for attaching a multicore electrical cable, as well as a plurality of plug-in contacts 6 which engage with further mating plug-in contacts 7 in mating connector 3. (P. 4, l. 1-7). After positioning plug connector 2 over mating connector 3 to produce an electrical plug-in connection, a cam-like guide element 8 arranged on housing 4 reaches into a recess 9 provided on mating connector 3. (P. 4, l. 9-12). While

producing the plug-in connection, in which plug connector 2 is guided into mating connector 3 in the direction of an arrow 10, cam-like guide element 8 glides along recess 9 until plug-in contacts 6 are brought into engagement with mating plug-in contacts 7. (P. 4, l. 12-16). The guidance of cam-like guide element 8 in recess 9 is subsequently released, in that the cross-section of recess 9, particularly in a region 11 which is also shown in the cross-section in Figure 3, is larger than the cross-section of guide element 8, so that cam-like guide element 8 is no longer immediately encircled by the walls of recess 9. (P. 4, l. 16-22). When this position of plug connector 2 in mating connector 3 is reached, then in this exemplary embodiment, centering elements 12 shown in Figure 2 position plug connector 2 in mating connector 3. (P. 4, l. 22-25). In the exemplary embodiment, centering elements 12 are formed as a circumferential shoulder which is far distant from the base of mating connector 3 to thus prevent the development of any pitching moments of plug connector 2 in mating connector 3. (P. 4, l. 26-30).

Due to the very simple design of guide elements 8 and centering elements 12 according to the present invention, plug connector 2 is introduced into mating connector 3 in a statically defined manner and without tilting and damage to plug-in contacts 6 and mating plug-in contacts 7, respectively, and is also positioned correctly after producing the connection. (P. 4, l. 32 - p. 5, l. 1). Centering elements 12 are advantageously arranged in such a way that, particularly in response to vibrational and shaking stresses, no pitching moments of plug connector 2 in mating connector 3 develop. (P. 5, l. 1-4).

VI. ISSUES FOR REVIEW

The following issues are presented for review on appeal in this case:

A) Whether claims 1, 2, 4 and 5 are anticipated under 35 U.S.C. § 102(e) by U.S. Patent No. 6,234,817 to Hwang et al. ("Hwang").

B) Whether claims 3 and 6 are unpatentable over the Hwang reference in view of United States Patent No. 6,358,067 to Takase et al. ("Takase").

VII. GROUPING OF CLAIMS

For each ground of rejection presented in this appeal, all claims will be treated as a single group.

VIII. ARGUMENTS

A. THE REJECTION OF CLAIMS 1, 2, 4 and 5 UNDER 35 U.S.C. § 102(e)

Claims 1, 2, 4 and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,234,817 to Hwang et al. ("Hwang"). Applicants respectfully submit that the rejection should be reversed for the following reasons.

To anticipate a claim under § 102, a single prior art reference must identically disclose each and every claim element of the claim invention, *arranged as in the claim*. See Lindeman Maschinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997).

Independent claim 1 recites:

An electrical connector, comprising:
a plug connector having a guide element;
a single composite mating connector having a recess, the recess being dimensioned so that during an insertion process of the plug connector into the mating connector, the guide element is guided into the recess, and in an inserted state, the recess is set apart from the guide element.

According to the Examiner, Hwang discloses "an electrical connector comprising: a plug connector (20) having a guide element (24); a single composite mating connector (10) having recess (14), the recess being dimensioned so that during an insertion process the guide element is guided into the recess and in an inserted state the recess is set apart from the guide

element (since the plug connector is movable with regard to the mating connector when both mated, col. 2, lines 46-48).” (7/31/02 Office Action). While Hwang does disclose an electrical connector having a guide element (guiding rod – 24) and a recess (receiving passage – 14) for receiving the guide element, Hwang does not, in fact, disclose **a recess being dimensioned so that during an insertion process the guide element is guided into the recess and in an inserted state the recess is set apart from the guide element.** Instead, Hwang discloses a plug connector (20) having a pair of guiding rods (24), which include a tapered tip (24a), that are received in the receiving passage (14) of the receptacle connector when the plug connector and receptacle connector are engaged. (See FIGs. 1, 2, 4; col. 2, ll. 32-45). When the two connectors are fully engaged and mated, the tapered tips of the guiding rods extend beyond the receiving passage; however, **in this inserted state, both guiding rods are fully within, and not set apart from, the receiving passage.** (See FIG. 4).

In support of the rejection, the Examiner cites a sentence in Hwang that states “[f]loatable means 30 is arranged the plug connector 20 such that when the plug connector 20 is moveable to the corresponding receptacle connector 10 when both are mated.” (Hwang, col. 2, ll. 46-48). Applicants respectfully note that this cited statement is at best incoherent and ambiguous, and this section simply does not provide requisite support for the Examiner’s conclusion.

Another section in Hwang presents a more understandable description of the floating means:

Floatable means arranged at least on the first connector such that when the first (floatable) connector is mated to the corresponding second connector of the second substrate, the first (floatable) connector is moveable respect to the corresponding second connector to compensate any misalignment therebetween thereby ensuring an electrical connection

between the first and second connectors. (Hwang, col. 1, ll. 46-53).

Thus, the floating means, as disclosed in Hwang, allows the entire plug connector (20) to move or "float" with respect to the substrate (41) of which the connector is attached so that both connectors can remain attached to one another when the associated substrates are not fully aligned. (See Hwang, FIG. 5; col. 49-60). Accordingly, this section of Hwang clearly does not disclose **a recess being dimensioned so that during an insertion process the guide element is guided into the recess and in an inserted state the recess is set apart from the guide element.**

The Examiner further argues that column 1, lines 46-53 of Hwang suggest that "the designed movement of the connectors in a direction perpendicular to a mating direction," which "movement is possible due to differences in diameter of the recess and the guiding member." (12/17/03 Office Action). Applicants respectfully note that the Examiner's assertion that "movement is possible due to differences in diameter of the recess and the guiding member" is inconsistent with the Examiner's rejection of Claim 1. Instead, this assertion appears to be based on treating the mounting pin (32) of Hwang as being the guiding element and the lug (31) as being the recess. However, even if one read Hwang in this manner as suggested by the Examiner, it still would not satisfy the limitations of Claim 1, for at least the following reasons.

First, the mounting pin (32) and lug (31) do not form a connector. The mounting pin is fixed into mounting hole 41 of the first substrate 40. Thus, the two parts of this connection are the mounting pin and the first substrate. The lug is pinned in place by the mounting pin and is able to move due to the differences in the diameter of the lug and the mounting pin. However, the connection between the mounting pin and the first substrate is independent of the lug or the first connector. Thus, the lug is neither a recess nor a connector.

Second, the mounting pin, lug, and mounting hole form a mechanical junction, not an electrical connection. Since there is no electrical connection, these components of Hwang do not form an **electrical connector** as is recited in Claim 1.

Third, when the mounting pin is connected to the first substrate, it is fixed within the recess of the mounting hole and through the hole of the lug. Therefore, **the mounting pin is not set apart from either the lug or the mounting hole when the mounting pin is inserted into the mounting hole.**

Fourth, the first connector does not have a guide element, and the mating connector does not have a recess. Hwang depicts the lug as being integral with the first connector (20), and the recess as being part of the first substrate. Thus, according to the Office Action's assertion, the first connector would have the recess rather than the guide element; the second connector would not have a recess; and the guide element would be a separate component.

Thus, referring to the mounting pin as the guide element, and referring to either the lug or the mounting hole as the recess, Hwang does not disclose each and every element of Claim 1. Since Hwang does not disclose each and every limitation of Claim 1, Hwang does not anticipate Claim 1 or its dependent Claim 2, 4, and 5 under 35 U.S.C. § 102(e). Reversal of this rejection is respectfully requested.

B. THE REJECTION OF CLAIMS 3 AND 6 UNDER 35 U.S.C. § 103(a)

Claims 3 and 6 were rejected under 35 U.S.C. § 103(a) as unpatentable over the Hwang reference in view of United States Patent No. 6,358,067 to Takase et al. ("Takase"). Applicants respectfully submit that the rejection should be reversed for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears

the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, generalized assertions that it would have been obvious to modify the reference teachings do not properly support a § 103 rejection. See In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992). Furthermore, even if a claim concerns a “technologically simple concept,” there still must be some finding as to the “specific understanding or principle within the knowledge of a skilled artisan” that would motivate a person having no knowledge of the claimed subject matter to “make the combination in the manner claimed.” In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000).

Claims 3 and 6 depend from claim 1. Hwang clearly does not disclose or suggest a recess being dimensioned so that during an insertion process the guide element is guided into the recess and in an inserted state the recess is set apart from the guide element, as recited in claim 1. In particular, the sections of Hwang cited by the Examiner in support of the rejection, column 1, lines 46-53, and column 2, lines 46-48, do not disclose the above-recited claim limitation, for the reasons explained above in detail in connection with the anticipation rejection of claim 1. Similarly, Takase also fails to disclose or suggest a recess being dimensioned so that during an insertion process the guide element is guided into the recess and in an inserted state the recess is set apart from the guide element. For at least these reasons, the combination of

Hwang and Takase fails to render dependent Claims 3 and 6 obvious under 35 U.S.C. §103(a). Accordingly, reversal of this obviousness rejection is respectfully requested.

IX. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the final rejection of claims 1-6 should be reversed.

Respectfully submitted,

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[10191/1674]

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Signature: 
Jong H. Lee

**APPENDIX TO APPELLANTS' APPEAL BRIEF
UNDER 37 C.F.R. § 1.192**

S I R :

The claims involved in this appeal, claims 1-6, in their current form
after entry of all amendments presented during the course of prosecution, are
set forth below:

APPEALED CLAIMS:

1. An electrical connector, comprising:

a plug connector having a guide element;

a single composite mating connector having a recess, the recess being dimensioned so that during an insertion process of the plug connector into the mating connector, the guide element is guided into the recess, and in an inserted state, the recess is set apart from the guide element.

2. The electrical connector according to claim 1, wherein at least one of the plug connector and the mating connector includes a centering element.

3. The electrical connector according to claim 1, wherein the guide element has a cam-like form, the guide element being arranged in an immediate region of an opening of the plug connector.

4. The electrical connector according to claim 1, further comprising:

at least one centering element arranged on a side opposite an opening of the plug connector, the at least one centering element configured to cooperate with the mating connector in the inserted state of the mating connector.


5. The connector according to claim 4, wherein the centering element has a lug-like form.

6. The connector according to claim 1, wherein the guide element has rounded edges.

Respectfully submitted,

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